

REPPERGER RESEARCH INTERN PROGRAM

RESEARCH PROJECT #: AFRL-RHW-23-02

Language Adaptation and Grounding for Effective Team Communication

PROJECT DESCRIPTION: Effective communication has been identified as a crucial component of team success; however, creating artificial agents and synthetic teammates with communication skills on par with their human counterparts still presents an enormous challenge, to the detriment of human-machine team performance. This project aims to document, codify, and evaluate the various communication behaviors of human teammates that contribute to effective communication, including the *grounding* of information into the “common ground,” and also the *adaptation* of linguistic forms and routines as needed for the task at hand. Our goal is to use our findings to develop agents with more sophisticated grounding capabilities, as well as agents that learn new linguistic forms and change their language use for different human teammates and different team tasks, ultimately improving team performance. Interns on this project will have the opportunity to perform literature reviews, develop experimental paradigms, collect and analyze data, develop and test cognitive models, and contribute to presentations and publications of the findings. Interns will interact with a cross-disciplinary team of psychologists, cognitive scientists, linguists, computer scientists, and cognitive modelers.

ACADEMIC LEVEL: Bachelor’s, Master’s, PhD

DISCIPLINE NEEDED:

- Linguistics
- Cognitive Science / Psychology
- Artificial Intelligence

RESEARCH LOCATION: Virtual or In-Person at Wright-Patterson Air Force Base, Dayton, Ohio

RESEARCH MENTOR: Sarah Bibyk, PhD
Brain and Cognitive Sciences, University of Rochester, 2016



Dr. Sarah Bibyk is a Research Psychologist in the Air Force Research Laboratory (AFRL), within the Cognitive Models Branch. She leads efforts related to language adaptation and communication resiliency in both human-human and human-machine teams. Her work focuses on determining what kinds of linguistic behaviors make for effective communication between team members, and how teams establish and maintain “common ground” to accomplish their task. She also contributes to efforts investigating how we can measure, quantify, and evaluate whether or not members of a team have “mutual understanding” related to their team task.

Photo courtesy of the U.S. Air Force Research Laboratory.